UNIVERSITY LAKES DISTRICT
BATON ROUGE, LA

Public Meeting
July 24, 2007

Presented by

Mark Wingate, PE

Senior Project Manager

USACE, New Orleans District

Purpose of Meeting University Lakes District

- ***Present Project Status***
  - *Progress to date*
  - *Plan Formulation*
  - *Draft Alternatives*
  - *Range of Cost*
  - *Where to Next*
- ***Obtain Public Comment/Assess Level of Support***
  - *View Displays*
  - *Give Comments to recorders at booths*
  - *Report-out*

Project Purpose

- **Continuing Authorities Program (CAP) 206**

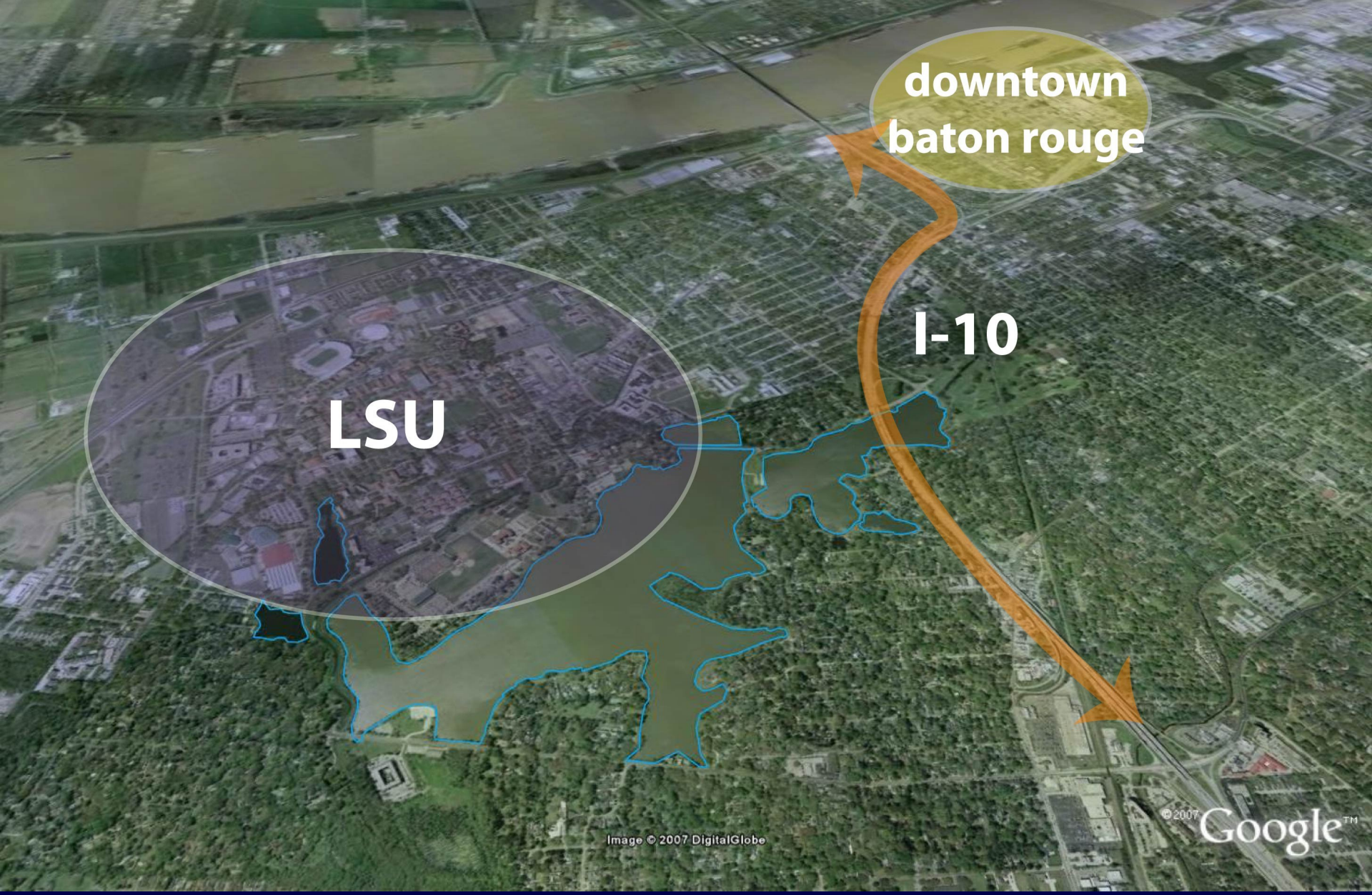
  "Aquatic Ecosystem Restoration"

- **Project Implementation**

  - Justification is based upon providing enhancements /improvements to the Aquatic Ecosystem of the Lakes

    - Benefits (Average Annual Habitat Units AAHU's)

  - Recommend most cost effective environmentally sound solution


downtown
baton rouge
I-10
LSU
Image © 2007 DigitalGlobe
©2007 Google™

College Lake
Campus Lake
Crest Lake
City Park Lake
University Lake
Private Lake
Erie Lake
2005

Study Progress
University Lakes District

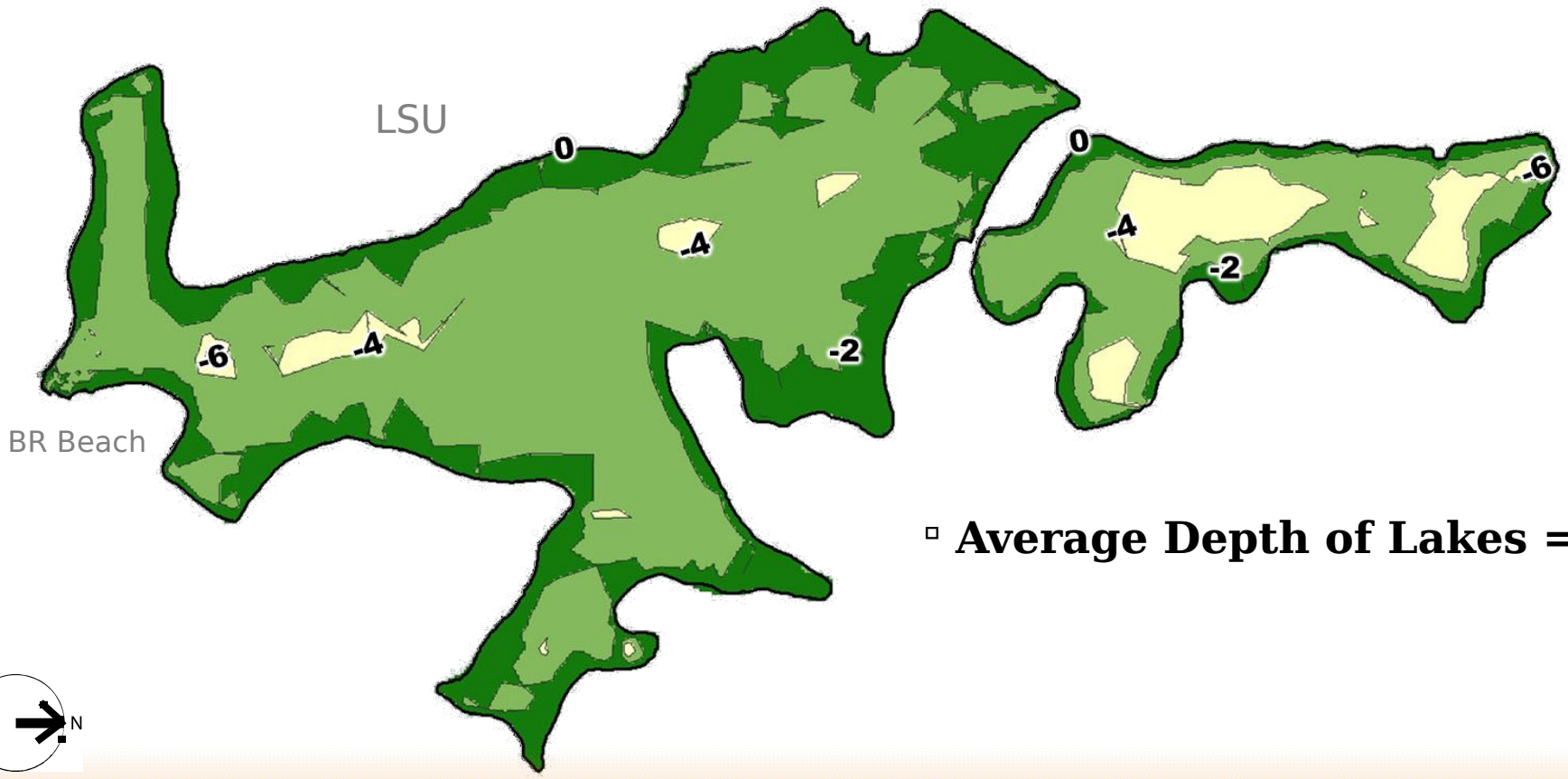
- Initiated Feasibility 2005
- First Public Meeting August 2005
- 12-18 months following Hurricane Katrina
  - MVN focused on Hurricane Recovery Mission
- Progress has continued on this project
- Only one of several CAP projects that continues to receive funding
  - Indicates level of importance

Lake District Inventory

- Literature Review √
- Survey √
- HTRW √
- Sampling Plan √
- Cultural Resources Sites Review
- Resource agency input √

No Apparent Impacts

Existing Conditions



- **Average Depth of Lakes = 2.6**

Lakes District CAP 206 Aquatic Ecosystem

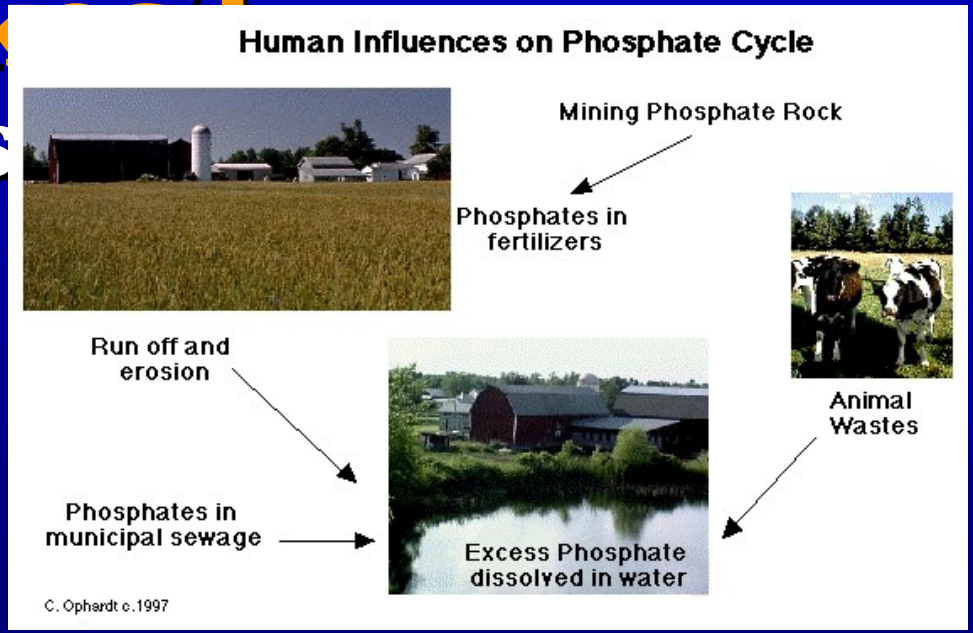
Identification of Problems

General Problems within the Lakes District

- Shallow
- Poor Water Quality
- Fish Kills

What is wrong with the Lak[illegible]?

- **Water Quality Is**
  - **Limited Depth**
  - **Phosphorous**
  - **Dissolved Oxygen**
  - **Temperature**



- **Degraded Ecosystem**
  - **Urbanization**
  - **Fish and Wildlife Loss**
  - **Inability to filter pollutants**

Objectives

- Improve Water Quality
- Improve Aquatic Habitat

Goals

- Mitigate/Remove Total Phosphorous
- Decrease Temperature
  - Provides areas of cooler water
- Improve Dissolved Oxygen
- Create Aquatic Habitat
- Decrease/Eliminate Fish Kills
- Improve Eroding Edges and Failing Banks
- Implement Best Management Practices (BMPs)

Draft Alternatives Three Major Groups

- **No-Action**
- **Non-Lake Deepening**
- **Lake Deepening**

No-Action

- Least expensive of all alternatives
- No environmental benefits
- Poor water quality and odors would continue
- Phosphorous would continue to accumulate
- Fish kills would continue and likely worsen
- Loss of recreation opportunities
- Filling of Lakes and vegetation occur
  - Similar to Campus Lake

Non Lake-Deepening Draft Alternatives

- Diversion of Stormwater Runoff
- Flush/Dilute
  - Using Groundwater Wells
  - Using Mississippi River
- Mechanical Aeration
- Wetland Cells
  - Not enough adequate benefits as a stand-alone project
  - May be used in conjunction with more comprehensive solution

Lake Deepening Draft Alternatives

- Increase water level
- Lake deepening and contouring
  - Hydraulic Dredging
  - Earthmoving

Lake Deepening Draft Alternatives

- **Increase water level**
  - Increased water volume
  - Fairly Inexpensive
  - Provides limited ecosystem restoration benefits
  - Reduced flood water storage, potentially increase risk of flooding
  - Could increase bank erosion
- **Lake deepening and contouring**
  - Increase Average Depth (from 3 feet to 5 feet)
  - Anticipated to stabilize and reduce excessive water temperatures
  - Reduce stress on fish
  - Remove existing phosphorous load
  - Reduce incoming phosphorous as much as possible (public outreach)
  - Remove highest phosphorous laden water
  - Contouring anticipated to maximize habitat benefits and manage sediment

Lake Deepening/Contouring Construction Technique

- **Hydraulic Dredging**
  - **Maintain water level in Lakes during construction**
  - **Most expensive of the Lakes deepening alternatives**
  - **Would remove approximately 50% of the existing phosphorous**
  - **May still result in fish kills**
  - **Would achieve average depth of 5 ft.**
  - **Construction time estimated at 2.5 years**
    - **May be viewed as having “negative aesthetics”**
  - **Lack of precision for slopes and depth**
  - **Reduced ability to remove stumps**

Hydraulic Dredging

Lake Deepening/Contouring Construction Technique

- **Earthmoving**
  - **Lakes would be drained**
  - **Anticipate high ecosystem restoration benefits for construction cost**
  - **Direct removal of about 80% of the existing phosphorous**
  - **Construction would take about one year**
  - **Achieve Lakes depth of 5 feet**
  - **Easier removal/placement of stumps**
  - **Better precision for contouring slopes and depth**
  - **Allow for potential force main repair/replacement in the dry**
  - **Management of stormwater from watershed during construction**
  - **Low operations and maintenance costs**

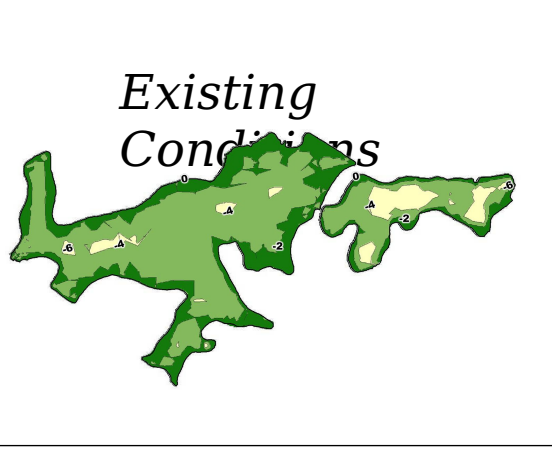
Earthmoving

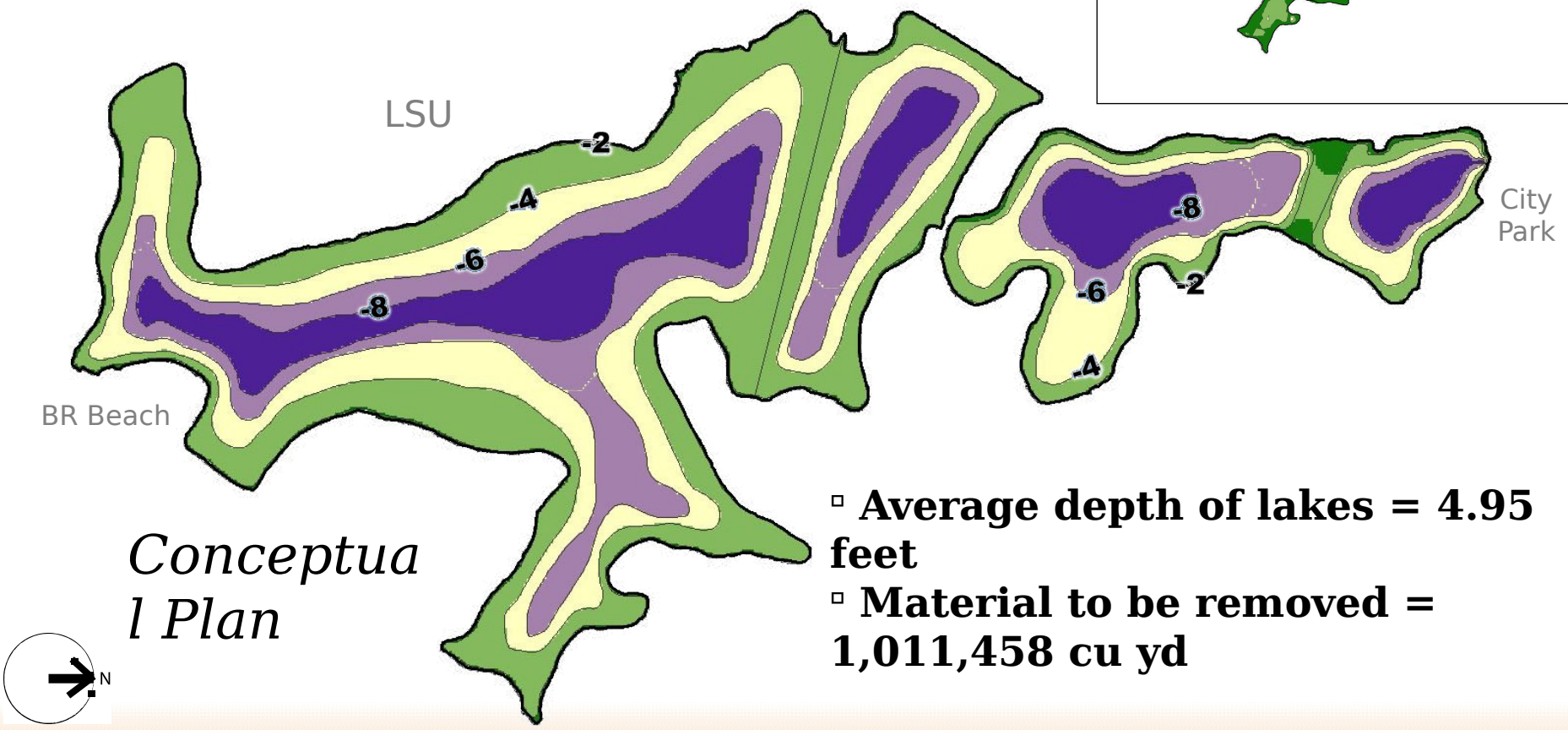
Lake Deepening Outcomes

- **Outcome 1 – Contour and Dispose**
- **Outcome 2 – Contour, Create wetland/BLH, and Dispose**
- **Outcome 3 – Contour, Build Proposed Plans, and Dispose**
- **Outcome 4 – Contour, Build Proposed Plans, and Other Potential Beneficial Uses**

***Management Practices would be recommended under each alternative**

Outcome 1: Contour Lakes + Offsite Disposal



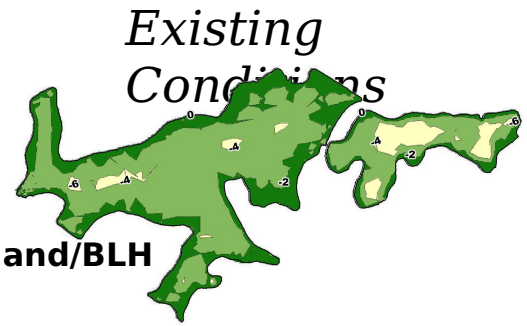


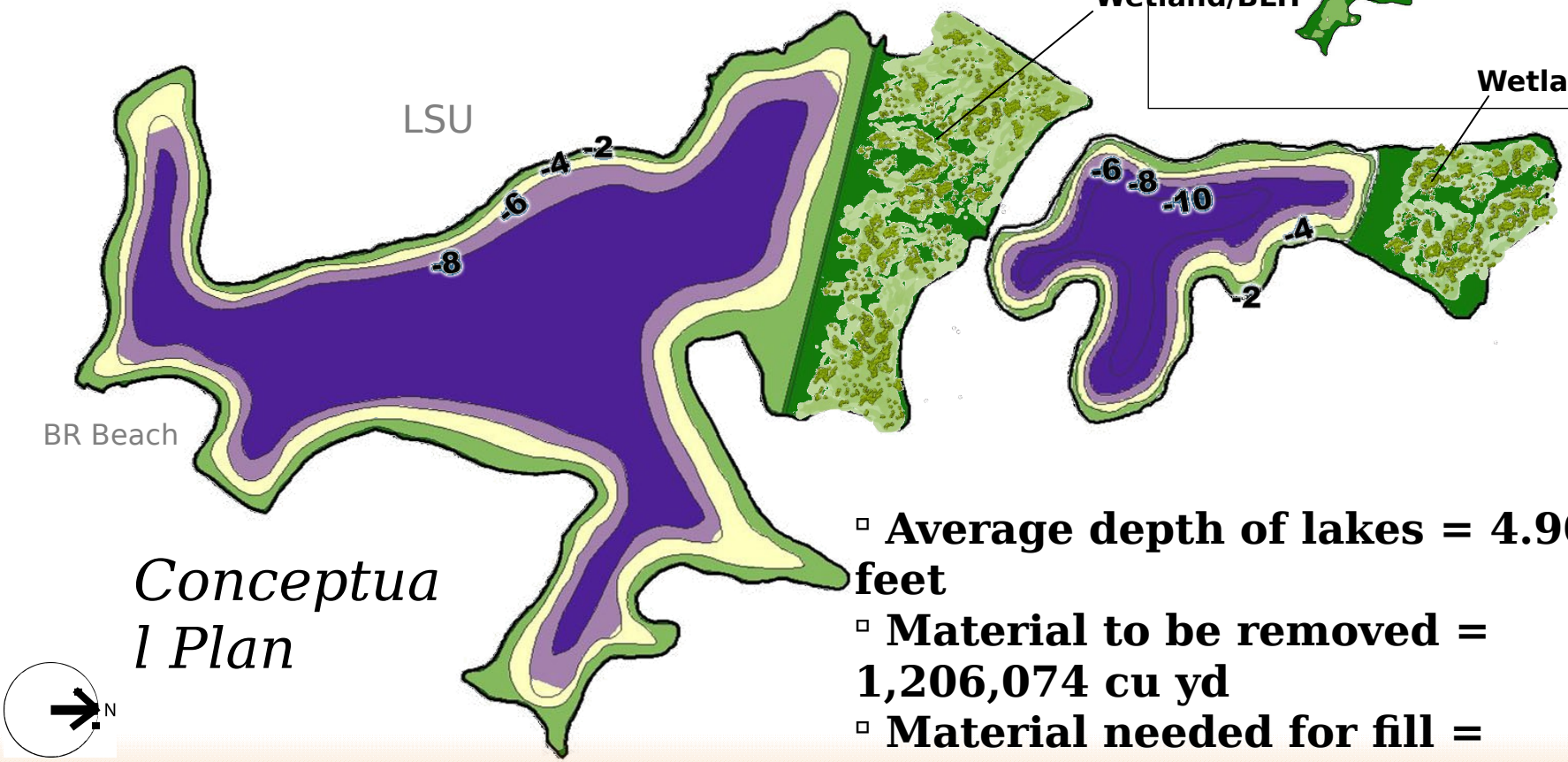
Conceptual Plan

- **Average depth of lakes = 4.95 feet**
- **Material to be removed = 1,011,458 cu yd**

Lakes District CAP 206 Aquatic Ecosystem

Outcome 2: Contour Lakes + Offsite Disposal + Wetland/BLH Creation

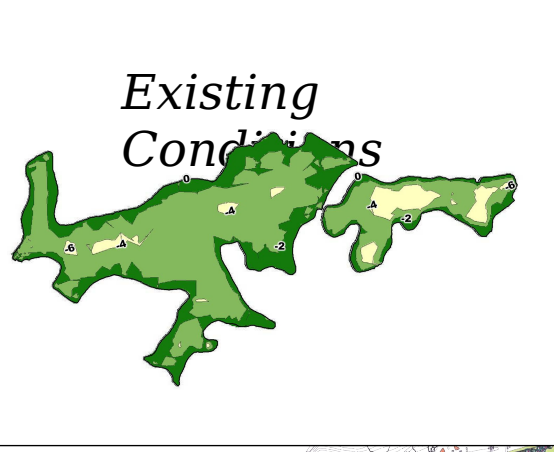




- **Average depth of lakes = 4.90 feet**
- **Material to be removed = 1,206,074 cu yd**
- **Material needed for fill = 196,365 cu yd**
- **Material to be disposed = 1,009,709 cu yd**

Lakes District CAP 206 Aquatic Ecosystem

Outcome 3: Contour Lakes + Offsite Disposal + Plans Propos by Others



proposed plans

LSU

-2
-4
-6
-8

BR Beach

-8
-6
-4
-2

proposed plans

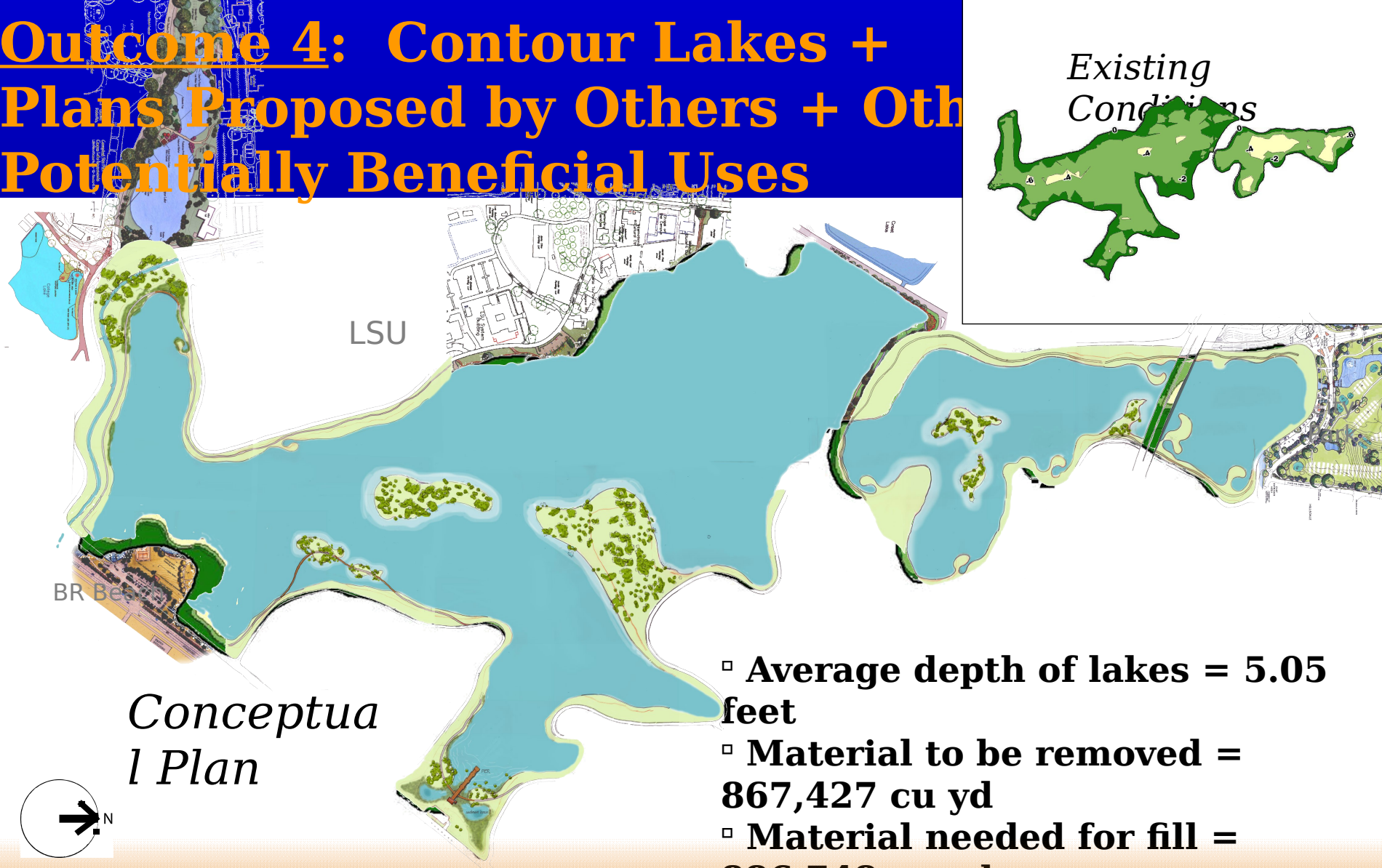
Conceptua l Plan

N

- **Average depth of lakes = 5.07 feet**
- **Material to be removed = 1,076,041 cu yd**
- **Material needed for fill = 211,833 cu yd**
- **Material to be disposed = 864,208 cu yd**

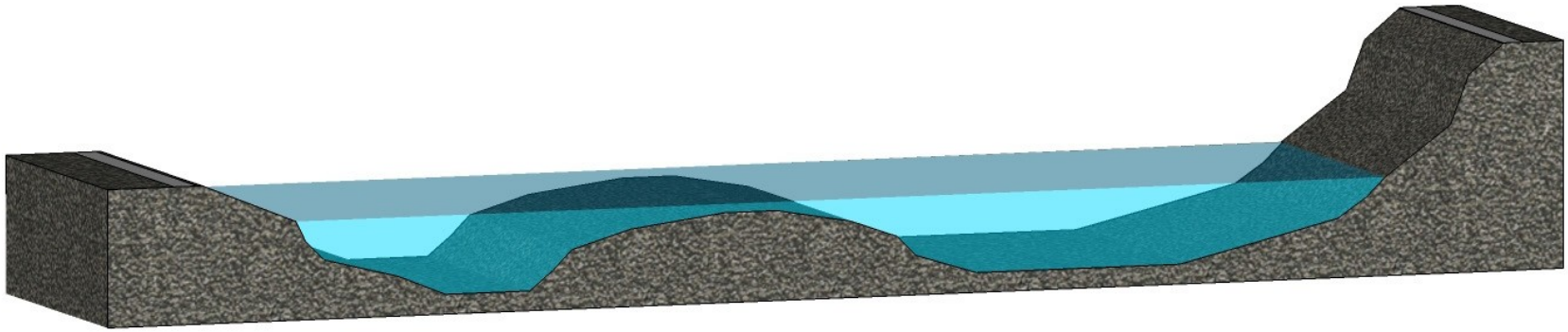
Lakes District CAP 206 Aquatic Ecosystem

Outcome 4: Contour Lakes + Plans Proposed by Others + Oth Potentially Beneficial Uses



- **Average depth of lakes = 5.05 feet**
- **Material to be removed = 867,427 cu yd**
- **Material needed for fill = 886,748 cu yd**
- **Material to be disposed = -19,321 cu yd**

Subsurface Islands

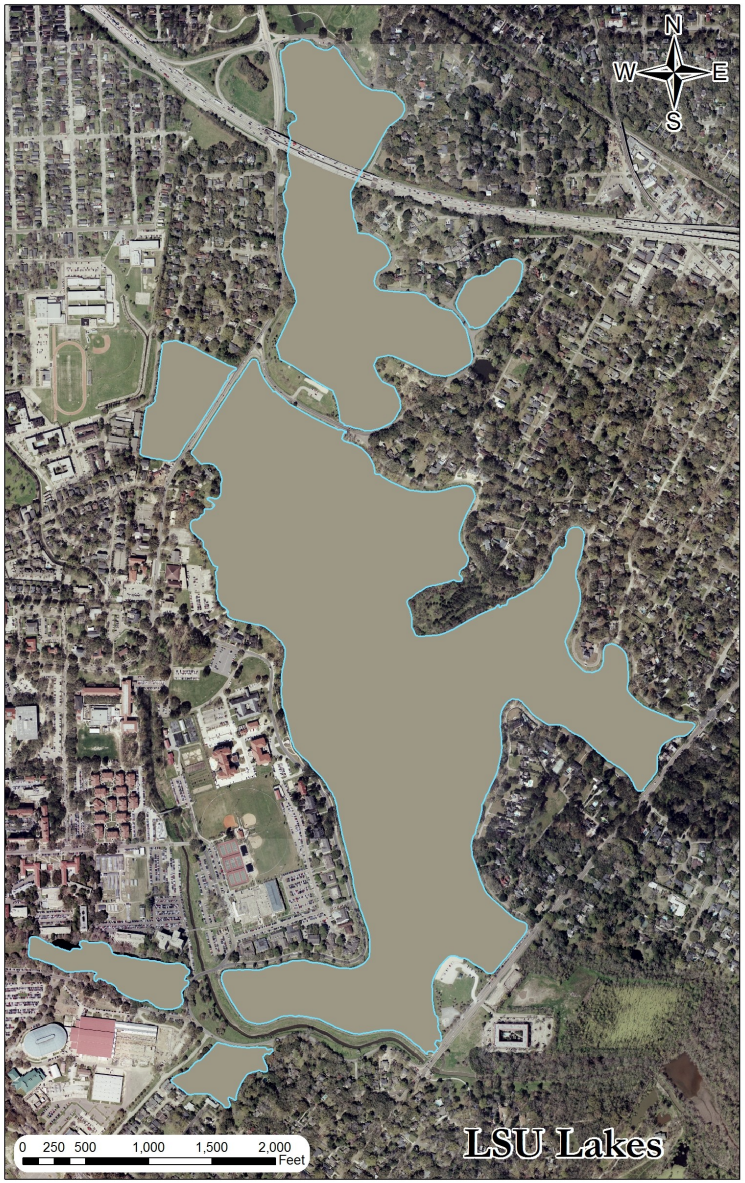


Provides additional fish habitat benefits without obstructing lake views

Preliminary Costs

- **Lake Deepening Draft Alternatives**
  - Dredging $35 - $50M
  - Earth Moving $7 - $15M
- **Project Cost Sharing**
  - 65% Federal ~ $5M
  - 35% Non-Federal ~ $2.7M

Where to next?



- **Incorporate/Consider Public comments**
- **Complete Draft Feasibility Study by Dec 2007**
- **MVD Approval & Execute PCA by March 2008***
- **Develop P&S Dec 2008***
- **Advertise and Award March 2009***

Schedule contingent on funding

University Lakes
Public Meeting

- **Next Public Meeting scheduled***
  - Thursday, August 2, 2007
  - BR Jones Creek Library
  - 6:00 - 8:00 pm

Follow-up to University Lakes and will also discuss Hurricane Restoration and EBR Flood Control in honor of "Flood Month"

For more information

http://www.mvn.usace.army.mil/pd/projectsList/